



**NSAI**  
Standards

Irish Standard  
I.S. EN 12182:2012

# Assistive products for persons with disability - General requirements and test methods

## I.S. EN 12182:2012

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces:*  
EN 12182:1999

*This document is based on:* EN 12182:2012  
*Published:* 14 May, 2012

This document was published under the authority of the NSAI and comes into effect on:  
14 May, 2012

**ICS number:**  
11.180.01

**NSAI**  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

**Sales:**  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

English Version

## Assistive products for persons with disability - General requirements and test methods

Produits d'assistance pour personnes en situation de handicap - Exigences générales et méthodes d'essai

Technische Hilfen für behinderte Menschen - Allgemeine Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 9 March 2012.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Contents

	Page
Foreword.....	5
<b>1 Scope .....</b>	<b>7</b>
<b>2 Normative references .....</b>	<b>7</b>
<b>3 Terms and definitions .....</b>	<b>9</b>
<b>4 General requirements.....</b>	<b>11</b>
4.1 Risk analysis .....	11
4.2 Intended performance and technical documentation.....	11
4.3 Clinical evaluation and investigation.....	12
4.4 Assistive products that can be dismantled .....	12
4.5 Fasteners .....	12
4.6 Mass limits.....	12
4.7 Immobilising means .....	12
4.8 Design requirements in relation to persons with cognitive impairment.....	12
<b>5 Materials .....</b>	<b>13</b>
5.1 General.....	13
5.2 Flammability .....	13
5.2.1 General.....	13
5.2.2 Upholstered parts, mattresses, bed bases and bedding.....	13
5.2.3 Upholstered parts .....	13
5.2.4 Mattresses and bed bases .....	13
5.2.5 Bedding.....	14
5.2.6 Moulded parts .....	14
5.3 Biocompatibility and toxicity.....	14
5.4 Contaminants and residues.....	14
5.4.1 General.....	14
5.4.2 Substances which may leak from an assistive product in intended use and in fault conditions.....	14
5.5 Infection and microbiological contamination .....	15
5.5.1 Cleaning and disinfection .....	15
5.5.2 Animal tissue.....	15
5.6 Resistance to corrosion.....	15
<b>6 Emitted sound and vibration .....</b>	<b>15</b>
6.1 Noise and vibration.....	15
6.2 Sound levels and frequencies of audible warning devices.....	15
6.3 Feedback .....	16
<b>7 Electromagnetic compatibility.....</b>	<b>16</b>
7.1 General.....	16
7.2 Emissions .....	16
7.3 Immunity .....	16
7.4 Power frequency magnetic field immunity .....	16
<b>8 Electrical safety.....</b>	<b>17</b>
8.1 General.....	17
8.2 Electrical systems.....	17
8.3 Continuity of power supply .....	17
8.4 Battery powered assistive products .....	18
8.4.1 Battery housings.....	18
8.4.2 Connection .....	18
8.4.3 Charge level indicator .....	18
8.5 Circuit protection .....	19
8.6 Electronic programmable systems .....	20
8.7 Electrically heated blankets, pads and similar flexible heating appliances.....	20

8.8	Assistive products with skin contact electrodes .....	20
8.9	Ingress of liquids .....	20
9	Overflow, spillage, leakage, and ingress of liquids .....	21
9.1	Overflow .....	21
9.1.1	Requirements .....	21
9.1.2	Test method .....	21
9.2	Spillage .....	21
9.2.1	Requirements .....	21
9.2.2	Test method .....	21
9.3	Leakage .....	21
9.4	Ingress of liquids .....	21
9.4.1	Requirements .....	21
9.4.2	Test method .....	22
10	Surface temperature.....	22
11	Sterility.....	22
11.1	Sterility requirements.....	22
11.2	Sterilization processes .....	22
11.3	Maintenance of sterility in transit .....	23
12	Safety of moving parts .....	23
12.1	Squeezing.....	23
12.2	Mechanical wear .....	23
12.3	Emergency stopping functions.....	24
13	Prevention of traps for parts of the human body.....	24
13.1	Holes and clearances .....	24
13.2	V-shaped openings .....	25
14	Folding and adjusting mechanisms .....	25
14.1	General .....	25
14.2	Locking mechanisms .....	25
14.3	Guards .....	25
15	Carrying handles .....	25
15.1	General .....	25
15.2	Requirement.....	26
15.3	Test method .....	26
16	Assistive products which support or suspend users .....	26
16.1	General .....	26
16.2	Static forces .....	27
16.3	Dynamic forces .....	27
16.4	Requirements and test method for tips .....	27
16.4.1	General .....	27
16.4.2	Friction of tips.....	27
16.4.3	Durability of tips .....	27
17	Portable and mobile assistive products .....	27
18	Surfaces, corners, edges and protruding parts .....	29
19	Hand held assistive products.....	29
20	Small parts .....	29
21	Stability.....	29
22	Forces in soft tissues of the human body .....	29
23	Ergonomic principles.....	29
24	Requirements for information supplied by the manufacturer .....	30
24.1	General .....	30
24.2	Instructions for use .....	31
24.2.1	Pre-sale information .....	31
24.2.2	User information .....	31

<b>24.2.3</b>	<b>Service information</b> .....	<b>32</b>
<b>24.3</b>	<b>Labelling</b> .....	<b>32</b>
<b>25</b>	<b>Packaging</b> .....	<b>33</b>
<b>26</b>	<b>Test report</b> .....	<b>33</b>
<b>Annex A</b> (informative)	<b>European standards for assistive products for persons with a disability produced or currently being developed by CEN/TC 293</b> .....	<b>34</b>
<b>Annex B</b> (informative)	<b>General recommendations</b> .....	<b>36</b>
<b>Annex C</b> (informative)	<b>Cognitive impairment</b> .....	<b>43</b>
<b>Annex D</b> (informative)	<b>Environmental and consumer related requirements</b> .....	<b>50</b>
<b>Annex ZA</b> (informative)	<b>Relationship between this European Standard and the Essential Requirements of EU Directive 93/42/EEC on Medical Devices</b> .....	<b>56</b>
<b>Bibliography</b> .....		<b>61</b>

## Foreword

This document (EN 12182:2012) has been prepared by Technical Committee CEN/TC 293 "Assistive products for persons with a disability", the secretariat of which is held by SIS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2012, and conflicting national standards shall be withdrawn at the latest by November 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12182:1999.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This standard provides one means to demonstrate that assistive products for persons with a disability, which are also medical devices, conform to the essential requirements outlined in general terms in Annex I of the EU Directive 93/42/EEC. It is not intended to provide a means to show conformity with the requirements of any other directive.

There are three levels of European Standards dealing with assistive products for persons with a disability. These are as follows, with Level 1 being the highest:

- Level 1: General requirements for assistive products;
- Level 2: Particular requirements for families of assistive products;
- Level 3: Specific requirements for types of assistive products.

Levels 2 and 3 may be combined into one single document.

All European Standards produced or currently being developed by CEN/TC 293 are listed in Annex A.

This standard is a Level 1 standard and contains requirements and recommendations which are generally applicable to assistive products for persons with a disability. For certain types of assistive products, these requirements are to be supplemented, modified or replaced by the special requirements of a standard for a particular assistive product (Level 2 or 3).

The Level 2 standards apply to a more restricted set or family of assistive products such as assistive products for walking. The Level 3 standards apply to specific types of assistive products, e.g. elbow crutches and urine collection bags.

Where standards for particular assistive products or groups of assistive products exist (Level 2 or 3), this general standard should not be used alone. The requirements of lower level standards take precedence over higher level standards. Therefore, to address all requirements for a particular assistive product, it is necessary to start with standards of the lowest available level.

European and International Standards for other assistive products for persons with a disability are being or may be developed by other technical committees within CEN/CENELEC, ISO/IEC (e.g. assistive products for hearing) and other organisations. For such assistive products, this Level 1 standard is only applicable if explicitly cited as a normative reference in the particular standard, although it may be used for general guidance within the field of assistive products for persons with a disability.

**I.S. EN 12182:2012**

**EN 12182:2012 (E)**

NOTE 1 Special care is required in applying this general standard to assistive products for which no particular standard exists to ensure that all aspects of safety are covered in the particular circumstances of the use of those assistive products. Guidance is given on aspects of the Essential Requirements of EU Directive 93/42/EEC to assist in this process.

NOTE 2 The use of assistive products may involve undesirable side effects and it is necessary to establish a balance between achieving the desired end result and the risk of such side effects. Hence, in exceptional circumstances, provision is made within this standard for clinical needs to override the requirements of this standard so long as adequate warnings are given.

NOTE 3 This standard calls for technical documentation to be prepared which may be used by manufacturers as part of the technical documentation required by EU Directive 93/42/EEC.

NOTE 4 Where this standard does not fully apply to particular assistive products, contracting parties should consider if appropriate parts of the standard can be used.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



## 1 Scope

This European Standard specifies general requirements and test methods for assistive products for persons with a disability, which are medical devices according to the definition laid down in the EU Directive 93/42/EEC.

This European Standard does not apply to assistive products which achieve their intended purpose by administering pharmaceutical substances to the user.

Where other European Standards exist for particular types of assistive products then those standards apply. However, some of the requirements of this standard may still apply and may be considered in addition to those in other European standards.

NOTE Not all the items listed in EN ISO 9999 are medical devices. Contracting parties may wish to consider if this standard or parts of this standard can be used for assistive products which are not medical devices as defined in the EU Directive 93/42/EEC.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 556-1, *Sterilization of medical devices — Requirements for medical devices to be designated "STERILE" — Part 1: Requirements for terminally sterilized medical devices*

EN 597-1, *Furniture — Assessment of the ignitability of mattresses and upholstered bed bases — Part 1: Ignition source: Smouldering cigarette*

EN 597-2, *Furniture — Assessment of the ignitability of mattresses and upholstered bed bases — Part 2: Ignition source: Match flame equivalent*

EN 614-1, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 980, *Symbols for use in the labelling of medical devices*

EN 1021-1, *Furniture — Assessment of the ignitability of upholstered furniture — Part 1: Ignition source smouldering cigarette*

EN 1021-2, *Furniture — Assessment of the ignitability of upholstered furniture — Part 2: Ignition source match flame equivalent*

EN 1041, *Information supplied by the manufacturer of medical devices*

EN ISO 25424, *Sterilization of medical devices - Low temperature steam and formaldehyde - Requirements for development, validation and routine control of a sterilization process for medical devices (ISO 25424)*

EN 60065, *Audio, video and similar electronic apparatus — Safety requirements (IEC 60065)*

EN 60335-1, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1)*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

EN 60601-1:2006, *Medical electrical equipment — Part 1: General requirements for basic safety and essential performance (IEC 60601-1:2005)*

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-